MATERIALS SPECIFICATION FOR DRY-BARREL FIRE HYDRANTS

1. General:

Except as modified or supplemented herein, all fire hydrants shall be designed and manufactured in strict compliance with AWWA C502. All references made in this Specification are to the above standard unless otherwise noted.

2. Service:

All fire hydrants supplied under these Specifications shall be designed for a working pressure of 150 psi and each factory assembled unit shall be hydrostatically tested in accordance with 5.1. Shop tests for the body and main valve will be conducted at a pressure of 300 psi.

3. Size of Hydrant:

All hydrants shall have a main valve opening size of at least five and one quarter 5-1/4 inches.

4. Type of Hydrant:

Hydrants shall be the three-way type with one pumper nozzle and 2 hose nozzles all located on the same horizontal plane, at least 18 inches above ground line.

5. Inlet Connection:

Hydrant base shall be provided with a mechanical joint inlet to accommodate 6 inch diameter cast iron pipe complete with plain rubber gasket, gland, bolts and nuts all in accordance with AWWA C111.

The bolts and nuts shall be a high strength low alloy corrosion resistant steel Cor-Ten or equal with a minimum yield of 50,000 pounds per square inch conforming to ASTM A 242. Incorporated into the base shall be two lugs for rodding of pipe.

All mechanical joint accessories shall be attached to hydrant for shipment.

6. Main Valve Assembly:

Main valve of the hydrant shall be the compression type which closes with the water pressure. Seat ring shall be bronze with a machined face and external threads for threading into a bronze drain ring, or a bronze bushed shoe to provide bronze to bronze seating for the main valve. The assembly shall be sealed with O-rings.

Main valve shall be replaceable type fabricated of a resilient material with a threaded bottom plate or nut with a seal to prevent leakage of the hydrant shaft. The upper valve plate material shall be either bronze or epoxy coated ductile iron.

The valve assembly shall include one or more drain valves which will work automatically with the main valve and drain the barrel when the main valve is in the closed position. All drain tubes shall be bronze lined and sized large enough for the barrel to drain within 12 minutes when the barrel is sized for a 5 foot trench depth.

All parts of the main valve assembly shall be so designed that removal of the assembly from the barrel is accomplished without excavation in accordance with AWWA C502 3.4.1.

7. Operating Shaft and Nut:

The bronze operating nut shall be bronze or ductile iron and shall be pentagon shaped with a finished height of 1-1/8 inch. The dimensions from point-to-flat shall be between 1-1/4" and 1-3/8 inch from the top and to the bottom of the nut. Bushings in bonnet shall be so constructed that it will prevent the operating nut from traveling during opening or closing operation. Also the bushing shall house a gasket or seal to prevent moisture or foreign material from entering the lubricant reservoir.

All hydrants shall be grease lubricated or shall be the dry-top design where an oil reservoir provides permanent lubrication of the operating nut threads.

A stop nut located in the hydrant bonnet on the operating shaft shall prevent over travel of the main valve when being opened.

The hydrant shall open by turning the operating nut to the right in a clockwise direction and shall have an arrow on top of the bonnet to designate the direction of opening.

8. Pumper Nozzle and Cap:

The pumper nozzle shall be 4-1/2 inches nominal diameter with 5-3/8 inch outer diameter threads having 6 threads per inch. Threads shall be right-hand. It shall be the supplier's responsibility to match the thread requirements for Denver Water's hydrants. A sample nozzle will be furnished upon request.

Nozzle cap shall be furnished with a synthetic rubber gasket installed in a retaining groove and the dimensions and shape of the nozzle cap nut shall be the same as the operating shaft nut as described above.

Nozzle caps shall be furnished with security chains with one end of each securely attached to the upper barrel section of the hydrant.

9. Hose Nozzles and Caps:

The two hose nozzles shall be 2-1/2 inch nominal diameter with 7-1/2 threads per inch (2.5 - 7.5 N.H.). Threads shall be right-hand and National Standard in accordance with NFPA No. 194. Each hose nozzle shall include a nozzle cap with nut and security chain the same as described above.

10. Nozzle Attachment:

Outlet nozzles shall be fastened into the barrel by mechanical means and secured by a stainless steel pin or screw, bronze wedge or a ductile iron retainer. Nozzles shall be sealed by the use of O-rings.

11. Color:

The upper exposed section of the hydrant above ground shall be thoroughly cleaned and then painted with a prime coat of a rust inhibitive primer followed by a 10 mil thick shop coat of heavy duty alkyd enamel paint. The paint color shall be yellow similar to Federal Color No. 13538.

All exposed exterior surfaces below the ground line shall be coated with asphalt varnish or equal in accordance with 4.2.3 of AWWA C502.

The interior of the hydrants shall be coated with an epoxy coating in accordance with 4.2.4 of AWWA C502. The epoxy paint shall be NSF 61 approved.

12. Certification:

Manufacturer shall furnish a sworn statement stating that all hydrants furnished comply with all applicable provisions of AWWA C502 as modified or supplemented herein. A copy of the Certification including interior epoxy paint compliance with NSF Standard 61 shall be sent to Denver Water.

13. Traffic Features:

All hydrants shall be equipped with traffic features that include a break away flange or lug system with a shaft coupling.

14. Acceptable Brands:

The following four brands of fire hydrants as described below will be considered as equal products. Any offers for other brands or model numbers will be rejected.

Manufacturer*	Model No.
American Valve and Hydrant A Division of American Cast Iron Pipe Company	B-84-B
Mueller Company	Centurion Model A-473

Waterous Company	Pacer WB-67-250
United States Pipe and Foundry Company	Metropolitan 250 M-94

* These brand names are the only ones considered for purchase by Denver Water, or for installation in the City and County of Denver and Total Service Areas. Other hydrant brands with appropriate model and options may be utilized by Distributor Contract Areas following approval for such use by Denver Water. Three such brands which have been approved by Denver Water are:

Clow F-2545
Kennedy K-81A
Centurion 423